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Teachers College Bulletin



Food Lessons for Nutrition Classes

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FOOD LESSONS FOR NUTRITION CLASSES

FOREWORD

For the past two and a half years students of nutrition at Teachers College have had opportunity to study the teaching of nutrition to children, first in classes at the Morningside Nutrition Center¹, and later at Public School No. 43, Manhattan. The children have been grouped in classes numbering from twelve to twenty-five children, ranging in age from kindergarten to eighth grade, mostly underweight for height and age. In Public School No. 43 the children are referred to the classes after examination by the school physician and are chiefly rated as "Nutrition III's" (Dumfermline scale) with a few II's and IV's.

The aim of this education is, of course, the physical betterment of the children, as well as improvement in their health habits to in-

¹The Morningside Nutrition Center was organized in October, 1919, through the efforts of a sub-committee of the Home Economics Committee of the Charity Organization Society, consisting of Professor Cora M. Winchell, Miss Emma A. Winslow, and the author. Its object was to afford students of home economics opportunities for practical applications of their work in the community.

The first class organized for children was held, through the courtesy of the Henry Street Nursing Association, in its local center at the corner of Amsterdam Avenue and 126th Street, New York City. It soon became evident that the Morningside Center needed quarters of its own, and through the support of the Charity Organization Society, it moved to 100 Lawrence Street in January, 1920. Later, the work aroused sufficient interest to enlist the cooperation of the New York County Chapter of the American Red Cross which was about to undertake a demonstration of Child Health work of various types in the city.

Public School No. 43, whose support the Morningside Center was already enjoying, as most of the children in its classes were coming from there, was the obviously suitable center for an intensive nutrition program. The cooperation, not only of the school principal and teachers but also of the Department of Health of New York City, and the Departments of Household Arts Education, and of Nursing and Health of Teachers College, was readily secured, and the Red Cross furnished a full-time nutrition worker for the Morningside Center. It soon became evident that the work for the children could be done more effectively in the school itself; consequently, in January, 1921, the rooms at 100 Lawrence Street were given up, the Charity Organization Society ceased its financial aid, and the work was transferred to the school, the Red Cross adding a second nutrition worker and establishing a dental clinic.

The work in the school with from 150 to 175 children at a time in special nutrition classes has now gone on steadily for a year. A new group has been chosen each half year for this intensive work. Each class contains from twelve to eighteen children and is taught by a student of nutrition at Teachers College, under the supervision of the author, so far as the lessons are concerned, and under the immediate direction of the two nutrition workers at the school, one of whom has supervised the home visiting done in connection with the classes since Miss Winslow's departure for London in September, 1921.

sure their future well-being. The class lessons have been supplemented by personal visits to the homes and by efforts to remedy physical defects, and to enlist the child's own interest and that of his family in his physical welfare.

The sequence of lessons described in this bulletin is based upon those given at the Morningside Nutrition Center between October, 1919, and June, 1920, to boys and girls from eight to ten or eleven years of age. They are the result of much discussion as to the most suitable subject matter and the best way of presenting it, on the part of the students giving the lessons; of much helpful suggestion and criticism from others associated in the work; and of the later experience with classes at Public School No. 43. While it has not been feasible to repeat in detail in the public school such a set of lessons as is given here on account of shorter lesson time and less favorable space and equipment for nutrition classes, the material has been helpful in planning other lessons and it is hoped will be suggestive to other workers.

Teaching nutrition classes differs somewhat from teaching regular school classes. The aim is not a reaction in the schoolroom, like the recitation of a lesson learned under the teacher's eye, with the stimulus of a whole class engaged in the same enterprise. The thing to be done must be done in another environment, away from the school stimulus, perhaps under very unfavorable circumstances. Consequently, the presentation of any subject matter, useful as this may be in arousing the children's interest and giving them helpful information, is not the first responsibility of the leader of a nutrition class. The interest aroused must be intense enough to carry over into the home environment. There must be intimate personal contact with each child in order to gain his confidence and inspire him with a sense of responsibility for his own health. There must be knowledge of the home situation and help in making it favorable to the program which the child is asked to carry out. He cannot buy his own food nor prepare it himself; he cannot even regulate the hours of his eating and sleeping unassisted. The home must so far as possible be made ready to grant what the child is being taught to ask for.

Subject matter is therefore a means to a very definite end. To have a class glibly reciting facts about food and health habits is no guarantee of improvement in any child's way of living. So, while

each lesson should add to the child's knowledge of how to gain health and keep it, each addition should be so presented as to suggest a definite and practical course of action. To form good habits there must be much repetition; to stimulate action in the face of difficulties enthusiasm must be generated.

It does not usually seem practical to have the same group of children under weekly instruction for more than four to six months at a time. During such a period, most of the children will have learned the facts which can be taught in such a class and will have made efforts to improve if they are ever going to do so. It then becomes increasingly difficult to get a response to the educational appeal. However, since children when left to themselves will drop back into their old habits very easily, some kind of probation should be devised to keep them under observation until it is demonstrated that they can take care of themselves with no more than the stimulus of the general health work of the school. A continuation class, meeting once a month for weighing and progress report is excellent if a group of about the same age can be gathered together.

If the school is developing a strong health program, the work of special classes is not only splendidly reinforced, but children dismissed from the weekly nutrition classes will not need as much subsequent supervision as they otherwise would. Furthermore, there will be less need for special classes, though there will always be need for a nutrition supervisor, to direct the nutrition program of the health work and look after individual cases.

The author believes that since food is the biggest factor in nutrition, a great deal of time in nutrition classes should be devoted to food; and that the best way to interest children in the foods they should be eating is to have those foods for them to see and taste and discuss. Sometimes they need to be interested in foods with which they are not familiar, and which they would not so much as try were it not being done by everybody in the class. There was Thomas, in a group being served farina. Everybody else was eating diligently. Thomas's spoon moved more and more slowly. "Go on, Thomas," the teacher said cheerfully, "we will play a game when you are through." Thomas gingerly gathered up the milk around the edges. "Would a little more milk help you, Thomas?" Thomas shook his head and manfully persisted. As the visitor went out

of the door, the last vision was of Thomas, a young Spartan, conquering the last mouthful. Would he have done it at home?

Sometimes it is important to show the children how good a very common food may be when suitably prepared. Besides having it in class, a recipe is sent home (pasted on the child's weight tag) and in a subsequent visit of the nutrition teacher the matter is discussed with the mother. This will often arouse mothers who are very indifferent about food. Some of them will come to the school themselves to ask for the recipes when the children forget to bring them home.

Besides the direct educational value, there is an element of novelty and festivity which leads the children to talk about the class at home. Opportunity to teach certain groups needed lessons about sitting down together to eat in an orderly way, with clean hands and courtesy, is afforded. No food should be given merely for entertainment, and for this reason as well as others, the portion served should be little more than a taste. The educational value should be kept uppermost. Only those foods should be selected which the children ought to eat and do not especially like, or do not know, and all should be kept within the capacity of the family pocket-book.

The following food lessons are not described with the idea that they are the only kind suitable for nutrition classes. Some lessons on general hygiene—proper rest, fresh air, etc.—may well be interspersed among the food lessons. But good food habits play such a fundamental role in good health that the nutrition teacher may justly bend her energies to impressing these upon her children and their parents. This is the contribution to public health which she has been especially trained to make, and one sure to bring good returns in the long run.¹

¹Suggestions for lessons on health habits will be found in Rose and Gorton, "The Child's Day," *Technical Education Bulletin*, No. 40 (Teachers College). For a list of such material refer to the *Nutrition Bibliography* published by the New York Nutrition Council.

FOOD LESSONS FOR CHILDREN FROM EIGHT TO TEN YEARS OLD

ARRANGED IN GROUPS OF SIX LESSONS EACH TO MAKE A
PROGRESSIVE SERIES

GROUP I. FOODS WHICH CHILDREN SHOULD KNOW AND LIKE

LESSON I. MILK, THE MOST IMPORTANT FOOD FOR GROWTH

The opening lesson should explain the purpose of a nutrition class and hold up the idea of health as something very desirable and worth working for. A bright picture of a boy or girl in action and glowing with vitality will serve to catch attention and help arouse enthusiasm. To show further what the work of the class is to be, a chart such as that published by the New York Association for Improving the Condition of the Poor, "Be Strong and Healthy," may well be used. This chart¹ sets forth food habits essential to health as follows:

Drink at least two cups of milk every day.

Eat freely of bread or cereal at every meal.

Eat some vegetable every day.

Do not eat sweets except at the end of a meal.

Drink at least six cups of water every day.

Do not drink tea or coffee at all.

Eat regularly three times a day.

Do not eat between meals—except an occasional light luncheon
halfway between two hearty meals.

Eat slowly—chew food thoroughly.

It is easy to direct attention to the first rule and illustrate the importance of food for growth by a photograph showing the difference in size of twin rats, one fed a good diet and the other a poor one.²

¹One of a set of eight charts, which may be found in miniature in the "Food Primer for the Home," also published by the A. I. C. P.

²Large photographs of this sort may be purchased from Professor E. V. McCollum, Johns Hopkins University, Baltimore, Md. Other helpful pictures and suggestions may be found in "The Food Value of Milk," Bulletin No. 215, Connecticut Agricultural Experiment Station, New Haven, Conn., and "Milk Necessary for the Nation's Welfare," Bulletin No. 291, Wisconsin Agricultural Experiment Station, Madison, Wis.

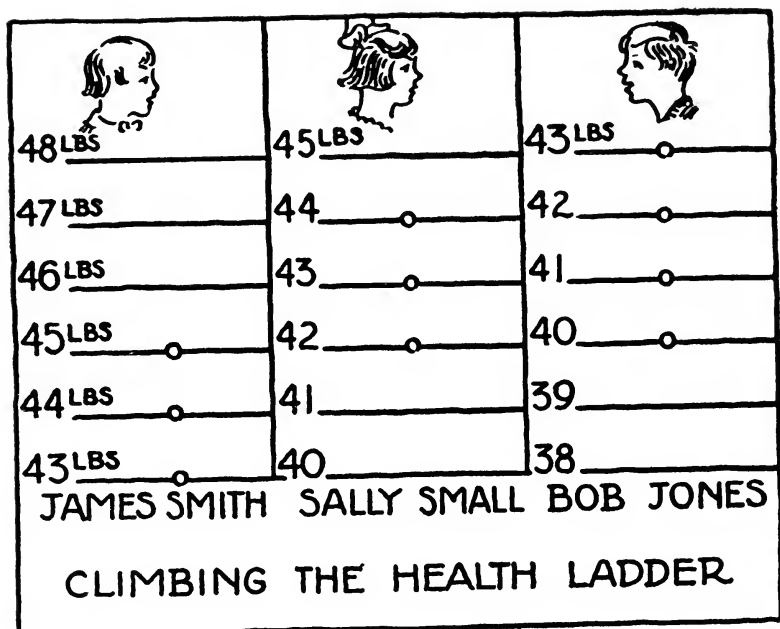
As the lesson progresses, each child may be urged to drink at least two cups of milk a day, three if possible, since a quart of milk is better for a child than only a pint; but it often takes time to educate families to the point of spending so much money for milk, and sometimes the family income is not such as to justify spending more than a bare minimum for even so important a food. Lest the zealous overdo the matter, it is well to issue a warning against trying to drink more than one quart of milk in a single day.

To arouse interest in milk itself, the children may be told about the time-honored custom of drinking to some one's health, and invited to drink to one another's health in milk. Paper cups may be produced and a pitcher of milk, each child being given a small portion (one-fifth cup). This "toast" to good health, displayed on a poster or blackboard, is quickly learned:

Here's to your good health and mine,
To make us grow this milk is fine;
Now pass around the jolly cup;
We'll give a cheer and drink it up.

No child will refuse to drink his portion under such circumstances, and most will go home and speak about this new experience. It may pave the way for asking for milk to drink at home.

Weighing the children is generally a routine matter in a nutrition class and will not be referred to in connection with the lessons which follow. A weight tag to send home with each child is desirable. It should state what he weighed previously, his present weight, and the gain since the former weighing. These tags may be made attractive in various ways, and the blank side serves for recipes or other messages to the mothers. The children's natural interest in their own gains may often be fostered by some kind of class record as well as by individual weight charts which should be regularly kept. One of the simplest and most effective is called "Climbing the Health Ladder." There is a ladder for each member of the class, with his or her name at the bottom and an appropriate picture of a child at the top. The rungs represent definite gains in weight and colored seals indicate how near each child is to the top, i.e., to normal weight for height and age. These charts give a group interest without objectionable features of rivalry or too much disturbance from inevitable fluctuations in weight.



LESSON II. COCOA, A SUBSTITUTE FOR MILK

Constant reviewing is important, especially when lessons come but once a week. One of the most valuable parts of a review is finding out the extent to which the children have acted upon the suggestions already made. This can only be discovered by adroit questioning. Care must be taken not to ask leading questions. One must not say, "Did you have milk for breakfast?" but rather, "How much milk did you have in your coffee?" One may then perchance discover whether the child did or did not have coffee. If he drank milk instead he is quite likely to say so.

A new picture is always in demand, and a suitable one for this lesson is the third chart in the series from New York A. I. C. P., already referred to, "Milk as Compared with Tea or Coffee as Food." This shows a healthy child, a bottle of milk and a cup of coffee, with a graphic comparison between the food value of milk and coffee simple enough for children to grasp. This chart will pave the way for talking about different methods of taking milk. Children who have

been used to tea or coffee for breakfast often appreciate cocoa because it is hot. It must be made clear that cocoa is merely a flavoring for the milk, and that plain milk would do quite as well. It may be a good idea to demonstrate the making of a cup of cocoa (easily done with a sterno stove and a small saucepan) because the children can often make it at home for themselves, or at least tell their mothers that it is to be made with milk, not water.

As an aid in maintaining the continuity of the lessons, the "Toast to Good Health" may be modified for this lesson:

Here's to your good health and mine,
To make us grow this cocoa's fine;
For coffee fails and also tea
To bring good health to you and me.

A small portion of cocoa may then be served to each child in a paper cup, just as the milk was before, and the recipe sent home on the back of the weight tag.

LESSON III. VEGETABLE SOUP, ANOTHER WAY TO USE MILK IN THE CHILD'S DIET

This lesson not only affords opportunity to review what has been taught about milk and what the children are doing in regard to drinking it, but also to introduce the subject of vegetables. Since the real significance of vegetables in the diet has only lately begun to be appreciated, it is found that most children have not been accustomed to them in their early years, and are not particularly interested in adding them to their diet. The story of "Cho-Cho and the Health Fairy," published by the Child Health Organization, offers suggestions for personifying them and giving them a dramatic interest. A chart showing the "Little Vegetable Men" is useful to introduce these "food friends"¹ and for "busy work" during the weighing period the children may be asked to draw pictures of certain ones with colored crayons, or to mount colored pictures from seed catalogues or other sources.

The merits of a hot vegetable soup should be impressed upon the children, and especially one made with milk. This is a type of

¹Some charming personifications of vegetables may be found in "Mother Earth's Children," published by Volland and Company. Also a picture, *Midsummer Night in Vegetable Land*, in "Jack O'Health and Peg O'Joy," published by Charles Scribner's Sons.

dish not commonly met with in their homes, and yet one in which mothers have shown great interest.

WE ARE THE VEGETABLE MEN



**EAT ONE OF US EVERY DAY
IF YOU WANT TO GROW**

Adapted from a picture in the "Metropolitan Mother Goose," published by the Metropolitan Life Insurance Company.

For serving the soup the children are best seated together about a table, if possible; at least in an orderly fashion, so that they may be served and eat together. If hands can be washed before the food is served, so much the better, as there is always need of seizing opportunities to teach cleanliness.

Another verse of the

series may be displayed as the children are about to be served:

Here's to your good health and mine,
When made with milk hot soup is fine;
Put peas or spinach in and see,
How good 'twill be for you and me.

LESSON IV. CORNSTARCH PUDDING, MILK IN DISGUISE

Considerable time may well be spent in introducing milk into the diet, as many people know little of it except as a beverage. Cornstarch pudding connects well with the preceding lessons, especially if flavored with cocoa. As this is the first sweet dish, opportunity is afforded for discussing the place of sweets in the diet—at the end of the meal and never between meals. A good pudding made with milk is better than cake or candy; boys and girls are best off without these. Puddings mean a pleasant way to eat milk and are not hard

to make. This lesson also offers opportunity for directing attention to the teeth. Milk and vegetables help to grow good teeth, sugar has no tooth-building capacity, and actually injures them if not washed from them after a meal.

When the pudding is served (very easily with small paper plates and spoons), the children may recite together;

Here's to your good health and mine,
To end a meal some pudding's fine;
The best are made with milk, you know,
The food that helps us all to grow.

LESSON V. DRY TOAST, A FOOD TO CHEW; MILK TOAST, A SUBSTITUTE FOR CEREAL¹ AND MILK

The way was prepared for a talk about teeth in the previous lesson.

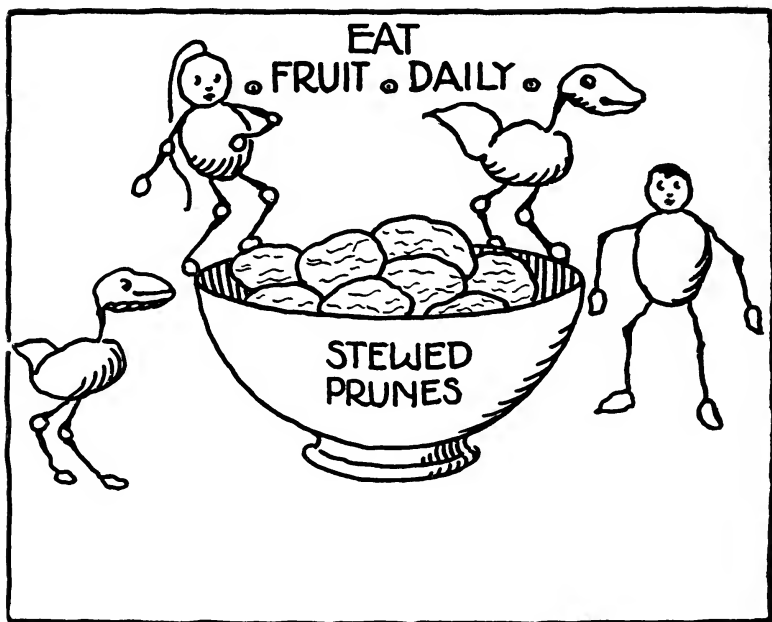
Good teeth are a sign of good nutrition and in the long run an asset for good nutrition. Children should be educated to the importance of good teeth and the necessity of mastication and slow eating as well as cleanliness. Dry toast is good chewing material. If whole wheat bread is chosen, a lesson on the value of mineral constituents in the food for the building of good teeth can readily be related to it, as well as to the milk and vegetables which have preceded. Suggestions for interesting children in their teeth may be found in the *Child's Book of the Teeth* (World Publishing Company). Squares of dry toast may be passed for a chewing match, the winner being the one who makes his last the longest. Later more of the toast may be served with hot milk seasoned with salt or salt and sugar. Milk toast is another dish simple enough to be made in any home and not used nearly as much as it should be. Often this makes a very acceptable substitute for the breakfast cereal. A "Table Verse" reviews the main point:

Here's to your good health and mine,
To make good teeth hard toast is fine;
See how we chew and chew and chew—
So children always ought to do.

¹The serving of a breakfast cereal was purposely deferred until a later lesson, but if only a few lessons are to be given, it should be included as lesson V or VI of this first group.

LESSON VI. FRUIT BLANC MANGE. FRUIT AS A SUPPLEMENT TO MILK

The lessons thus far have dealt with foods that all children ought to know and like (milk, cereals, vegetables) and some simple yet pleasing ways in which they may be eaten. There should also be some instruction as to the place of fruit in the diet; for while it is generally popular, it is not always wisely used and there is need especially of information about dried fruit, fresh being often too expensive for the family pocket book.



The fruit lesson should be connected with the idea of a regular daily bowel movement, for badly fed children are all too often the victims of constipation and "regulated" by a weekly "pill." Prunes are one of the most important fruits to teach and their use as a breakfast fruit without cooking (merely soaking over night and then allowing to stand drained free of water till the second day) can easily be demonstrated. It is also a good plan to show children how good

stewed prunes may be with proper care in selection and cooking. Emphasis also needs to be laid on making fruit part of a meal, for very often it is regarded as something perfectly proper for children to eat between meals, whereas experience has shown that random fruit eating tends towards undernutrition.

A prune-raisin-cornstarch blanc mange¹ is a good device to make a little fruit add to the attractiveness of a family diet and in this series makes a good connection with the former lessons—milk, cereal and fruit, all in one simple, wholesome dish.

A lively interest in a dish of prunes may be stimulated by a verse similar to the following, while the children are partaking of the pudding:

Here's to your good health and mine,
To make us grow these prunes are fine;
Some kind of fruit we need each day,
To keep us fit for work or play.

GROUP II. THE ENERGY VALUE OF FOODS

LESSON I. THE CALORIE—A UNIT OF FOOD MEASUREMENT

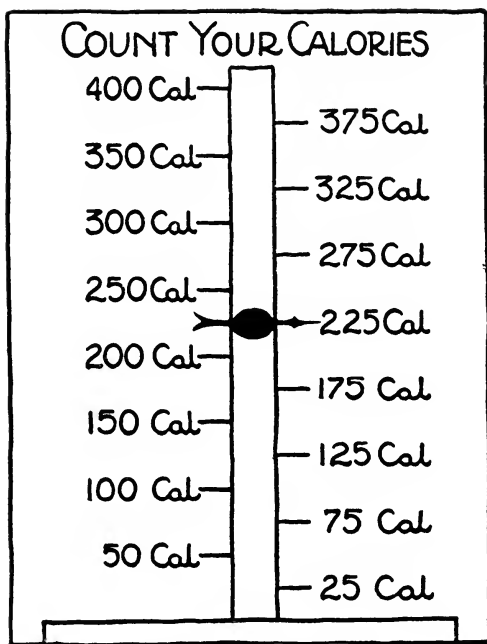
A shortage in calories is one of the commonest dietary deficiencies, and especially in the case of children, whose energy needs are so much greater in proportion to their size than those of adults. Hence boys and girls old enough to have had some training in arithmetic may properly be taught to "count their calories."

To introduce the idea of measuring foods and fitting them to body needs, the "calorie yardstick" was prepared by taking a wooden T-square and fastening it to a large sheet of cardboard in such a way that an arrow made of cardboard could move freely up and down the long arm. Behind the upright arm was a "calorie scale" as on a thermometer.

On a table was assembled a serving of each of the foods which the children had had in their previous lessons. When the lesson began a large chart was placed before the children, with the word "Calories" prominent, and this verse:

¹This excellent pudding does not seem to be generally known. The recipe may be found in Van Arsdale and Monroe, "Some Sugar-saving Sweets for Every Day," *Technical Education Bulletin*, No. 35 (Teachers College).

Sing a song of calories
 The sprites in food and drink;
 Bright boys and girls who wish to grow
 Must count them in a wink.



THE "CALORIE YARDSTICK"

The teacher held up a picture of an automobile and the children then discussed how the automobile goes. They were told that they also had engines which must have something corresponding to gasoline, i. e., calorie-bearing food. They were told how many calories they needed each day, and how many there were in each of the servings of food before them. As these calories in each food were mentioned they were carefully measured off on the "yardstick" and then totaled.

Not to complicate this lesson with a new food, a fifty-calorie portion of cocoa was served, and the children encouraged to figure out how this compared in size with the serving they would be likely to have at home.

LESSON II. CALORIES IN COMMON FOODS

For this lesson cut-out pictures of the foods which the children had had in former lessons were secured, and these the children pasted on cards (a cup of milk, a cup of cocoa, a bowl of cream soup, a dish of prunes), writing under each the number of calories in it. Then a set of new foods was placed on a table before them, this time in 100-calorie portions, and these were measured off on the "yardstick."

These included common items, such as bread, butter, oleomargarine, peanut butter, corn syrup, as well as the foods mentioned above.

The children were then given a loaf of bread to cut off 100-calorie portions (in two slices). These were made into sandwiches after being spread, one with peanut butter, the other with corn syrup, and served to the children. Sandwiches were chosen because these children very often have to get their own lunches at noon, their mothers being away at work. Sandwiches and milk can be ready for the children when they come from school, or the children can get them easily themselves.

The little table rhyme was continued, the one for this lesson being:

One hundred fifty calories,
A glass of milk can show,
A slice of bread holds fifty more,
To make our engines go.

LESSON III. CALORIES IN VEGETABLES AND FRUIT

A chart prepared for this lesson showed 100-calorie portions of different kinds of fruit grouped about a picture of a healthy child. This was placed on exhibition before the lesson, and by the time the weighing was finished the children had nearly all learned these food values. Fruits and vegetables were discussed together as desirable kinds of food for children to eat, and the fact pointed out that calories must come from several kinds of food to build a good diet just as a house must have several kinds of material. The potato was exhibited as a vegetable supplying many calories, one containing 100 calories being displayed.





The class then used the calorie yardstick to determine the calories they might have in a dish of creamed potatoes, as each ingredient, milk, butter, flour, was shown and the calories it contained indicated. That this is another opportunity to use milk was also brought to their attention; 50-calorie portions of creamed potatoes were served, and these verses were written on the blackboard to read during the repast:

Sing a song of calories,
Banana, orange, fig,
One hundred calories from each,
Provided they are big.

One hundred calories apiece
 Potatoes, too, will give;
 Without these "fairies" in our food
 Not one of us could live.

LESSON IV. CALORIES IN A CHILD'S BREAKFAST

A child's breakfast was set upon a table as an exhibit, and calories in each dish discussed and those in the whole meal added up. The danger of children getting too few calories in the morning when they rise late and have to hurry to school was pointed out. A breakfast of coffee and a roll was shown to have too few calories, in addition

<div style="display: flex; align-items: center;"> <div style="margin-right: 20px;">BREAKFAST</div>  </div>		
	OATMEAL $\frac{3}{4}$ cup	75 CALORIES
	MILK $\frac{3}{4}$ cup	45 CALORIES
	TOAST 2 slices	100 CALORIES
	BUTTER 2 tsp.	66 CALORIES
	MILK TO DRINK	125 CALORIES
	TOTAL	411 CALORIES

to the objectionable qualities of the coffee. How a glass of milk and the same roll would give more calories was also shown. The children knew enough of arithmetic to work out these simple sums on the blackboard, and greatly enjoyed doing it.

In connection with meals, children need instruction about the right amount of different foods to use in a meal. That four prunes are

better for breakfast than a dozen, leaving the rest till another meal; that a large serving of cereal is a great help towards gains in weight; that an extra slice of bread or an extra roll means just so many calories more for making body engines run well; and that a glass of milk or a cup of cocoa is to be regarded as an indispensable part of a good breakfast, are points to emphasize.

The children's individual calorie requirements were written on cards for them, and they were urged to see whether they could each get from 400 to 500 calories for breakfast, and to report at the next meeting.

The serving of a 50-calorie portion of oatmeal completed the lesson, and as they ate it together the children considered how far the addition of milk would push the pointer on the yardstick. At serving time a chart was placed before the children showing in pictures the model breakfast which had been demonstrated with the actual foods at the beginning of the lesson, this verse accompanying:

Sing a song of breakfast time,
And what we need to grow;
Four hundred calories at least
This meal should yield, we know.

LESSON V. CALORIES IN A CHILD'S DINNER

A dinner chart, similar to the breakfast chart of the last lesson and showing a total of 800 calories, served to introduce this lesson. A list was made upon the blackboard of all foods with energy value known to the children. Later these were erased, the children were given names of the foods, and as these were called, they rose quickly and told how large a 100-calorie portion would be, thus making a sort of game.

Kidney bean stew¹ was chosen as an example of a dinner dish and 50-calorie portions were served. This is wholesome, economical, and always popular.

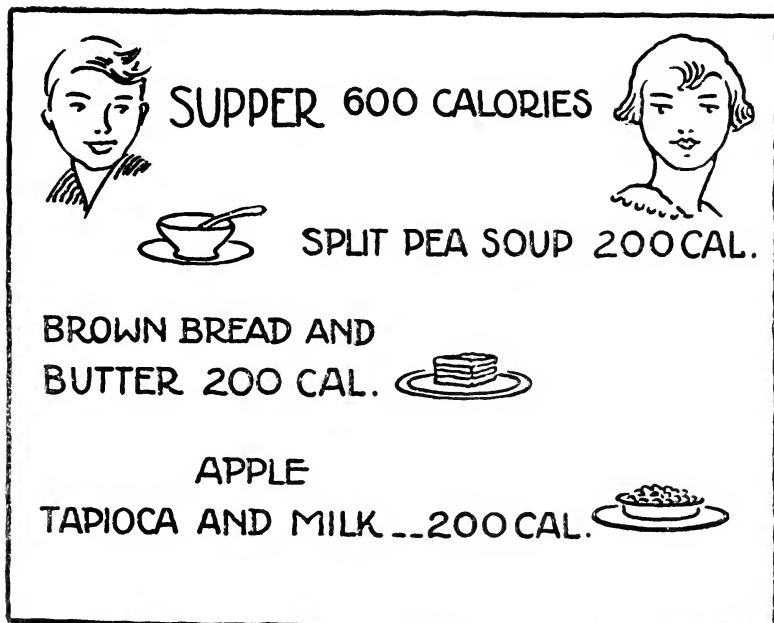
To the chart exhibited at the beginning of the lesson was attached the verse:

¹Good recipes for such classes may be found in "Economical Diet and Cookery in Time of Emergency," by Rose, Winchell and Shapleigh, *Technical Education Bulletin* No. 30. (Teachers College).

Sing a song of dinner bells,
Food fairies trooping in;
How many are invited here?
Eight hundred—let them in.

LESSON VI. CALORIES IN A CHILD'S SUPPER

The children were first given a set of cut-out pictures of foods of various kinds, and asked to pick out those which would be suitable for breakfast. These were discussed, and finally enough of them were selected to make a sample meal and pasted on a chart. The children then decided how many calories should be assigned to each food, and these figures were written on the chart, and the total for breakfast put on the blackboard. The number of calories suitable for dinner and the kind of dinners children should eat were next reviewed. Knowing how many calories they needed in a day the children found by subtraction the number desirable for supper. By this time they knew the calorie-value of enough foods to suggest the main items of a suitable supper—bread, milk, butter, fruit, pota-



to, for instance. A supper chart, showing a meal totaling 600 calories, was added to the breakfast and dinner charts already on exhibition, thus completing the day. To the supper chart was attached the verse:

Sing a song of supper,
And children soon to bed;
Six hundred lively calories
For every sleepyhead.

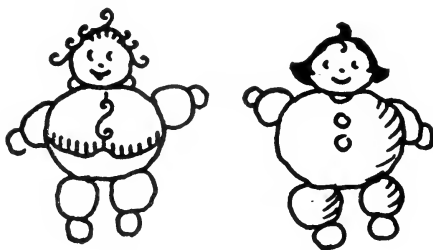
Mock Indian pudding, rich in milk and high in energy value, was chosen to serve, thus completing the lesson and the series.

GROUP III. THE COMPOSITION OF FOOD

LESSON I. MILK, A SOURCE OF ALL THE DIETARY ESSENTIALS

The charming story of the Milk Fairies, by Jennie Van Heyson McGillis, suggested the theme of this lesson. A poster was made having a milk bottle in the center, and around this were portrayed the different "fairies"—a soldier boy for "Captain Protein," one of John Martin's Chubbies¹ for "Fat," twins in white for "Carbohydrate," triplets in three colors for "Vitamins," and a small army of little red, yellow and brown men for iron, calcium and phosphorus as representatives of "Mineral Salts."

These were each pointed out and the children promised that they should get acquainted with them all in due time, but that in this lesson they would take "Chubby Fat" out of the milk bottle and have



THE FAT CHUBBIES

a look at him. To make this promise come true, a pint of sour cream was churned with a Dover beater, and the resulting butter was spread upon saltines and eaten by the children at the close of the hour. During the churning the origin of milk was discussed; pictures of the cow, the place where

the cow lived, and the calf which the milk was designed to feed

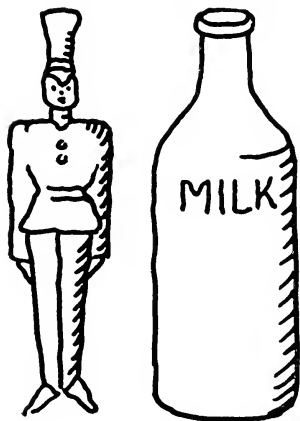
¹See any number of John Martin's *Book for Children*.

were shown, and finally the children who grew rosy from drinking the milk.

LESSON II. MILK, A SOURCE OF PROTEIN

The chart of the previous lesson was again presented and reviewed. This time "Captain Protein" was to be brought out of the bottle. The children were told a story of how a boy was to be built in fairy land. Here was a group of calorie fairies to make him "go" when he was finished; here were all the other fairies anxious to work on him and help put him together, but they could not get started because they must do team work; no one could work unless all the others were working, and "Captain Protein" was not to be found. So they went hunting hither and yon and finally found him fast asleep under a mushroom. "Wake up," they cried, "we have a little boy to finish today." Captain Protein rubbed his eyes, and said, "Oh, go on without me; I'm sleepy." "But we can't," they all cried. "We can't do a thing without you. Nothing goes right when you are a-

way." So Captain Protein blew a long blast on his tin horn to wake himself up, and then scampered away with the other fairies at his heels. They all pitched in with such vim that the little boy was done in half an hour.



CAPTAIN PROTEIN

A quart of sour milk which had been gently warming over hot water was produced, the curd separated from the whey, and made into cottage cheese. While this was going on, the children reviewed what they knew about foods suitable for each meal in the day and the calorie values of the foods which they had learned. Pictures of the different

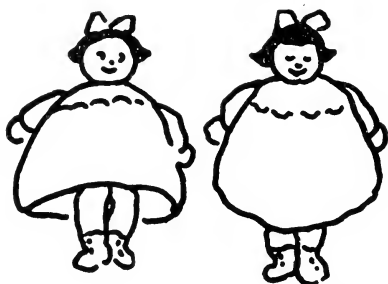
foods were held up, and the children tried to see who could tell the size of a 100-calorie portion most quickly.

The cheese was finally served, made into sandwiches with brown bread and butter.

LESSON III. MILK, A SOURCE OF CARBOHYDRATE

The "Carbohydrate Twins," starch and sugar, cut out of white paper and mounted on a dark ground, were presented to the class at the opening of this lesson.

It was explained that only one of the twins really lived in milk, but the other could not bear to be far away. So they are always thought of together. Sugar is what makes milk so sweet and good. A sample of milk sugar was shown, and the children were allowed to taste it. It is not so sweet as the



STARCH SUGAR
THE CARBOHYDRATE TWINS

sugar we have on our tables, but it is better for children on that account. Children need very little table sugar, for if they are eating as they should they get quite enough sugar in their milk. Starch is not sweet and you might think she was not a real twin of sugar. But she is a sugar fairy in disguise. If you chew a crust of bread long enough, it will begin to taste sweet. That is because the saliva in our mouths works magic upon the starch in the bread and changes it to sugar. Whenever we eat starch, our bodies do that—change it to sugar. It is better for us to eat much bread and other starchy foods rather than much table sugar, because it is not so sweet and digests more easily. There are a number of our most important foods that have much starch in them, including bread of all kinds, oatmeal, cornmeal, rice, and other cereals, besides cornstarch and flour. Some of this kind of food is good for every meal in the day.

The children were then told a story adapted from "Ceres and Proserpina." How Ceres, whose work it was to take care of all the grains and make them grow to make bread for the world, lost her little daughter; how Proserpina, going with Pluto, would not eat the rich food, the cakes and sweetmeats which he provided for her, but begged for the bread and milk which her mother used to give her. How she would not drink his coffee but pleaded for cool clear water, and how when she was finally returned to her mother, the grains

again began to grow and the boys and girls of the world again had bread.

A few spears of wheat, oats, and such other grains as could be obtained were shown the children, and their attention was directed to rice, which is almost pure starch. Boiled rice with a few raisins cooked with it was suggested as a good supper dish for the children and this was served with milk to conclude the lesson.

LESSON IV. MILK, A SOURCE OF CALCIUM

The children were first shown a bone which had been treated with acid until pliable, and were asked how they would like to have bones like that. Then a chart was produced, showing the army of little calcium men which had been on the chart used in the first lesson of the series. It was explained to the children that neither bones nor teeth could be built without these, nor could a strong body ever be developed without having a good supply of calcium on hand. Milk was specially needed for these fairies, as they liked to live in milk better than anywhere else, and, in fact, there were not many of them found anywhere else in food.

The teeth of the children were then inspected to see how many had been building good ones. Comments were also made at this time as to how well they were taking care of the teeth which it took good food to build. Efforts were made to arouse their pride in a good set of teeth as a sign of good food and good care. Cut-out pictures of foods rich in either protein or starch were distributed for the children to sort into protein and starch groups.

A mock oyster soup (milk and tomatoes, slightly thickened with cracker crumbs) was used as an example of a fine carrier of calcium. The calorie value was also discussed, and the calories needed for the different meals of the day were reviewed.

LESSON V. MILK, A SOURCE OF VITAMINS

This time the "Vitamin Triplets" were displayed as policemen, each on his own card in his true color (as shown on the original milk fairy chart) and bearing his appropriate letter, A, B, or C.

Vitamin A was introduced to the children first, as a fat fellow,

loving the top part of the milk bottle best. The children were told how he held a club over all the other milk fairies to make them



THE VITAMIN TRIPLETS

work. If he were not there they would all get lazy and do nothing. Photographs of young animals were shown, some that had food without vitamin A and could not grow, and others that had plenty. The children were also told that this vitamin had the

power to make some bad germs so weak that they could do no harm. They were shown a photograph of an animal deprived of the A vitamin, that had a sore eye from bad germs that A vitamin might easily have kept from doing any harm. Other foods besides milk in which this vitamin might be found were exhibited, as spinach, lettuce, carrots, eggs, and butter.

Vitamin B was next introduced in a fashion similar to vitamin A. The children were told that this vitamin was also a policeman, making the other fairies work better, that it really took both A and B to keep them at work all the time. Children persist in growing so fast that "Captain Protein" and all the calcium and other "mineral men" had more than they could do to supply material for bones and teeth and all the rest, to say nothing of the calories that boys and girls use up in running about! As they needed help so vitamin B was called to assist A. You would not even have appetite for your food if B were "off his beat." As vitamin A preferred the top of the milk bottle, so B preferred the lower part. He could be found also in other foods (exhibited) as tomatoes, oranges, apples, cabbage, potatoes, in fact, in many fruits and vegetables. This is one of the reasons why it is important for boys and girls to eat some kind of green vegetable and some kind of fruit, besides drinking milk, every day.

Vitamin C was also shown with a club in his hand and a group of foods at his feet. He is the third policeman of the "squad." But he is a rather delicate policeman. He cannot stand heat like the other fellows. When milk is pasteurized to kill any germs that may have

fallen into it, it just makes him sick. He sometimes goes away from milk entirely and we have to find him somewhere else. He loves potatoes and tomatoes and cabbage and oranges to hide in. This is another reason why we want some kind of fresh fruit or vegetable every day. Then we know our third good policeman will be at hand to help keep us well. He is not quite such a driver as A and B, but he helps them out on all occasions, and we should get sick if we left him out.

Junket was served at this lesson. All the food fairies are held in it.

LESSON VI. IRON AND OTHER MINERAL ELEMENTS IN FOOD

Iron was represented by a troop of little brownies.¹ It was explained to the children that these brownies are painters. They love red. They take little disks as they sit along the banks of the blood stream, paint them red, and throw them in. These by magic become little boats, to carry food and oxygen to all the little workers in the body. They color lips and cheeks red, and we say, "How well that little girl looks!" They can work best in the sunshine, so we must go out of doors to play in it awhile every day. If we stay in the house, the brownies get weak and cannot do their work. They cannot get into our bodies except through food. Not many of them live in the milk bottle, though the ones who do live there are very strong and



THE IRON BROWNIES

hard workers. But we must have more then we should get in milk, even if we do make a business of drinking a glass at each meal. So we must look at these foods (exhibit spinach, whole wheat bread, egg, beef). Green foods are the ones in which brownies love best to hide. They think it a joke for *red* painters to live in *green* places. So another good rule for boys and girls (referring back to chart giving food rules used in Lesson I, Group I) is, "Eat some green

¹Lippincott's edition of Miss Mulock's *Adventure of a Brownie* furnishes two or three admirable pictures for this lesson and suggests a good story (Brownie on the supper table and on the milking-stool, particularly).

vegetable every day." A few times a week a little meat is good, and a few times a week an egg if we have plenty of money. But the green vegetable is the most important for every day.

Other minerals were represented by a troupe of sprites in various colors. The largest was yellow, bore the letter P, for phosphorus and was pointed out as the captain of this mineral troupe. He and calcium work together. In fact, calcium cannot build any bones unless phosphorus is there to help. Even the "vitamin policemen" are weak when this fellow is not around. Fortunately, he loves the milk bottle, and the green vegetables and fruits that we are going to eat for other reasons, so we need not say more about where to get this food fairy. He never comes alone. Always a troupe of followers is with him in the milk, the vegetables and the fruits, helping in one way and another in the great work of making boys and girls grow strong and lively.

Now we have studied all the milk fairies. We know how many calories there are in a bottle of milk; how "Captain Protein" helps the other fairies with all his might, leading the way every time; how the "vitamin policemen" keep every one straight; how the "iron brownies" make little red boats and paint lips and cheeks as a sign that all is well inside, if we give them enough fresh air and sunshine; how "calcium" and "phosphorus" work together like brothers to build bones, and do other useful things for everybody; and even the little "mineral fairies" whose names we have not learned, troop along and do their bit.

Isn't it wonderful what a bottle of milk has taught us? Is it strange that we want to get one for ourselves each day if we can, and if we can't have a whole bottle, to ask for as much as our mothers can possibly let us have (though we should never be so greedy as to take more than a quart in a day)? Now we shall have our last party together. This time we are going to have a great hiding place of the "iron brownies"—spinach. The spinach was served, cooked with toast to thicken it and a little onion for flavor, a way of cooking this vegetable which the children seem to like.

This lesson may well be followed by a series of lessons on "breakfast," "dinner" and "supper," showing the children foods suitable for each, quantities desirable for the different foods, their energy values, and the reason for different kinds of food.

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